

## CLAIMS

1. A bent tube having a bend configuration comprising:  
a curve extending between first and second ends;  
a portion of the curve being a circular arc; and  
a transition portion extending from the circular arc toward the  
second end and having a curvature decreasing gradually from the curvature  
of the circular arc to the zero curvature of a straight tube.
- 5 2. The tube of claim 1 wherein the transition portion is a clothoid.
3. The tube of claim 1 including a second transition portion  
extending from the arc portion toward the first end having a curvature  
decreasing from the bending radius of the arc to the zero curvature of the  
straight tube.
4. The tube of claim 1 wherein the curve subtends an angle of 90  
degrees.
5. The tube of claim 1 wherein the curve subtends an angle  
greater than 90 degrees.
6. The tube of claim 1 wherein the curve subtends an angle less  
than 90 degrees.
7. A draw die for tube bending, the die having a bending surface  
configuration comprising:  
a curve extending between first and second ends;  
a portion of the curve being a circular arc; and

a transition portion extending from the circular arc toward the second end and having a curvature decreasing gradually from the curvature of the circular arc to the zero curvature of a straight tube.

5 8. The tube of claim 7 wherein the transition portion is a clothoid.

9. The tube of claim 7 including a second transition portion extending from the arc portion toward the first end having a curvature decreasing from the bending radius of the arc to the zero curvature of the straight tube.

10. The tube of claim 7 wherein the curve subtends an angle of 90 degrees.

11. The tube of claim 7 wherein the curve subtends an angle greater than 90 degrees.

12. The tube of claim 7 wherein the curve subtends an angle less than 90 degrees.